

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
Petition for Rulemaking to Allocate the)	
1675-1680 MHz Band for Terrestrial Mobile Use)	
Shared with Federal Use)	RM-11681

**COMMENTS OF PUBLIC KNOWLEDGE AND OPEN TECHNOLOGY INSTITUTE
AT NEW AMERICA**

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I. Introduction

Public Knowledge (“PK”) and Open Technology Institute at New America (“OTI”) submit these comments in response to the Commission’s Public Notice seeking to refresh the record regarding Ligado’s¹ Petition for Rulemaking (“Petition”) regarding the 1675-1680MHz band.² Public Knowledge and OTI support Ligado’s proposal, because the successful deployment of mobile broadband services using this band serves the public interest.

II. Ligado’s Proposal Identifies Important Public Interest Benefits to be Realized by Allocating the 1675-1680 MHz Band for Mobile Broadband.

A. Freeing up more Federal spectrum for mobile broadband serves the public interest by addressing demand and facilitating innovation and competition.

As Ligado identified in its Petition, the need for additional spectrum for mobile broadband is acute.³ When Ligado filed its Petition in 2012, 5G was distantly on the horizon, with the focus in the wireless industry remaining squarely on expanding 4G deployment. At the time, Ligado extensively discussed the need for additional spectrum, writing that “[b]oth the public and private sectors broadly acknowledge” the fact that “[a]n increasingly urgent need exists for additional spectrum to be made available to support mobile broadband services.”⁴ Now, with 5G technologies on the horizon and the Internet of Things growing at a tremendous pace, the need for additional spectrum for mobile broadband, to support new and innovative products and services, is even more acute.

¹ Throughout this document, “Ligado” will be used to refer consistently in reference to actions of both the present entity, Ligado, as well as those undertaken by its predecessor, Lightsquared, prior to its bankruptcy and subsequent restructuring.

² See generally In the matter of Lightsquared Subsidiary LLC, RM-11681, *Petition for Rulemaking* (Nov. 2, 2012) (“*Petition*”).

³ *Id.* at 3.

⁴ *Id.*

The Commission should promote policy initiatives that enable Federal users to accomplish their critical missions in a manner that makes the most efficient use of scarce spectrum resources while also freeing up more spectrum for flexible and mobile use. Technological advancements have enabled innovative spectrum sharing, and Federal spectrum sharing, done thoughtfully, presents the opportunity for a rare win-win-win for policymakers and stakeholders. Spectrum sharing by Federal agencies (which collectively hold by far the largest spectrum allocations) opens up additional spectrum for mobile broadband to meet the increasing demand for wireless services and encourages Federal users to make the most efficient possible use of scarce spectrum resources. Additionally, expanding the amount of spectrum available for licensed and unlicensed use facilitates the growth and deployment of innovative new technologies and networks.

Congress, too, has recognized the importance of increasing access to Federal agency spectrum, with the Energy and Commerce Committee working on bipartisan legislation designed to incentivize Federal agencies to make more efficient use of their spectrum, or share it with non-governmental users.⁵ And, the White House agrees that freeing up additional Federal spectrum for mobile broadband is important to the nation's wireless future, endorsing efforts by the FCC to open up more mobile broadband spectrum and working to encourage sharing by Federal agencies.⁶

⁵ See Press Release, *#SubCommTech Approves Bipartisan Proposals to Boost Broadband Infrastructure Deployment and Increase Spectrum Availability* (Dec. 2, 2015), available at <https://energycommerce.house.gov/news-center/press-releases/subcommtech-approves-bipartisan-proposals-boost-broadband-infrastructure>.

⁶ See generally Tom Power, *Promoting Collaboration to Advance Wireless Spectrum for Economic Growth*, White House Blog (Apr. 1, 2014), <https://www.whitehouse.gov/blog/2014/04/01/promoting-collaboration-advance-wireless-spectrum-economic-growth>.

Additional spectrum is clearly necessary for innovative new services, and legacy spectrum allocations, particularly those held by Federal agencies, will play a critical role in meeting the consumer and marketplace needs for wireless spectrum in the 21st century. Expanded access to spectrum benefits consumers by facilitating the development and growth of existing technologies like WiFi, which rely on unlicensed spectrum, as well as the expansion of commercially available wireless products and services which cater to their needs.

B. Deployment of mobile broadband service in the MSS L-Band has previously been found to be in the public interest, and the justifications for this finding remain relevant today.

The Commission has previously recognized the public interest benefits of Ligado's proposal. In 2010, the Commission found that Ligado's "plans to provide 4G mobile wireless broadband are a significant public interest benefit, both because of the competition it will bring in mobile wireless broadband services and because it will provide mobile wireless broadband service to traditionally underserved areas."⁷ In a mobile broadband marketplace which has continued to consolidate over the intervening years, the public interest benefits of additional competition, whether wholesale or direct to consumers, are more palpable than ever. Public interest organizations and consumer advocates have long agreed with the Commission that Ligado's proposed deployment will serve the public interest.⁸ These public interest advocates have explained that additional competition in the mobile broadband space would enable a new

⁷ *SkyTerra Communications, Inc., Transferor and Harbinger Capital Partners Funds, Transferee*, 25 FCC Rcd 3059, at ¶ 65 (2010).

⁸ *See, e.g.* Comments of Public Knowledge, New America's Open Technology Institute, and Common Cause, *Ligado's Modification Applications*, IB Docket Nos. 11-109, 12-340, at 3-5 (May 23, 2016); Comments of Free Press, Media Access Project, The New America Foundation, and Public Knowledge, SAT-MOD-20101118-00239 (Dec. 9, 2010); Comments of New America Foundation's Open Technology Institute, Public Knowledge, Free Press, and Media

ecosystem of hardware, software, and applications, bring much needed competition to a relatively uncompetitive marketplace, and foster the potential for innovation, increased consumer welfare, and job creation.⁹

III. Appropriate Public Interest Obligations Should be Included in Service Rules for the 1675-1680 MHz Band.

While the additional competition and efficient use of spectrum proposed by Ligado will serve the public interest, the Commission should also create rules for the band that reflect the need for additional unlicensed spectrum and leverage advances in technology that permit spectrum sharing.

A. The Commission Should Permit Opportunistic Access and Unlicensed Access to Unused Portions of the 1675-1680 MHz Band on a Use-or-Share Basis.

This proceeding presents the Commission with another opportunity to reframe its public interest analysis in a manner consistent with the evolution of technology and policy in the 21st Century. Traditionally, because the Commission could only grant licenses to a handful of licensees, it required the licensee of the “public airwaves” to serve as a trustee for the community.¹⁰ Modern technology, at least in some cases, removes the necessity to rely on an intermediary to serve as trustee. As an initial matter, therefore, the Commission should consider it the highest form of public interest to permit direct access by the public to the public airwaves, whether through allocations for unlicensed use, or through license conditions such as use-or-share provisions.

Access Project, SAT-MOD-20101118-00239, IB Docket No. 11-109, at 4-5, 13-15 (Aug. 1, 2011).

⁹ See generally *id.*

¹⁰ See generally *Red Lion Broadcasting Co., Inc. v. FCC*, 395 U.S. 367 (1969).

At the same time, this is not possible for all uses. High power mobile systems, for example, still require exclusive licensing. In such cases, however, the Commission should recognize that the public interest requires that a grant of exclusivity, or an expansion of existing exclusive rights, is a cost to the public that should be offset through concrete benefits¹¹ and by enhancing – or at a minimum protecting – the existing open spectrum.

Unlicensed spectrum plays a key role in mobile connectivity. In 2014, U.S. economic activity related to unlicensed spectrum was valued at more than \$220 billion annually.¹² Unlicensed spectrum is critical for a variety of wireless technologies, including WiFi, Bluetooth, Near Field Communications for mobile payments, and other uses such as wireless medical devices and public safety applications. The need for more unlicensed spectrum and its importance to the U.S. economy will only continue to grow. Cisco reports that by 2020, the IoT will connect 50 billion devices, with an economic impact estimated at \$19 trillion.¹³ Similarly, McKinsey has estimated that IoT applications could have an economic impact of up to \$33 trillion by 2025.¹⁴ The vast majority of IoT traffic travels over unlicensed spectrum, and that will continue to be true.¹⁵ Without significantly more unlicensed spectrum, existing unlicensed

¹¹ See generally 47 U.S.C. § 309(j)(3)(C).

¹² Telecom Advisory Services, LLC, *Assessment of the Economic Value of Unlicensed Spectrum in the United States* 73 (2014), available at <http://www.wififorward.org/wp-content/uploads/2014/01/Value-of-Unlicensed-Spectrum-to-the-US-Economy-Full-Report.pdf>.

¹³ Olga Kharif, *Cisco CEO Pegs Internet of Things as \$19 Trillion Market*, Bloomberg Business, Jan. 8, 2014, available at <http://www.bloomberg.com/news/articles/2014-01-08/cisco-ceo-pegs-internet-of-things-at-19-trillion-market>.

¹⁴ Mohana Ravindranath, *Cisco CEO at CES 2014: Internet of Things is a \$19 Trillion Opportunity*, Wash. Post, Jan. 8, 2014, available at http://www.washingtonpost.com/business/on-it/cisco-ceo-at-ces-2014-internet-of-things-is-a-19-trillion-opportunity/2014/01/08/8d456fba-789b-11e3-8963-b4b654bcc9b2_story.html.

¹⁵ Raymond James & Associates, *The Internet of Things: A Study in Hype, Reality, Disruption, and Growth* 1 (2014); Wifi Forward, *Playing by the Rules: The Success of Unlicensed Spectrum*,

frequencies will become overly congested, harming both the IoT and licensed mobile networks that rely on unlicensed bands to offload traffic.¹⁶

Additional unlicensed spectrum is necessary to fully realize the economic promise of a connected world, and the Commission can supplement its ongoing efforts to designate more spectrum for unlicensed use by including a use-or-share requirement in the service rules for the 1675-1680 MHz band. Such a condition would be consistent with the FCC's recent use-or-share proposal in the Spectrum Frontiers Notice of Proposed Rulemaking ("Spectrum Frontiers NPRM"), designed to ensure spectrum is put to productive use,¹⁷ and would align with 21st Century spectrum policy priorities, democratize spectrum access, and promote more intensive spectrum use, permissionless innovation, and economic growth. Widespread opportunistic access can enhance efficient reuse of this mid-band spectrum without any risk to licensee operations by relying on a geolocation database governance mechanism that is either an extension of, or similar

<http://www.wififorward.org/playing-by-the-rules-the-success-of-unlicensed-spectrum/> (last visited May 22, 2016).

¹⁶ See e.g., Emily Hong, *We Need More Radio Frequency Spectrum Than Ever. Why Is this Band Going Largely Unused?*, Slate, Jan. 21, 2016, http://www.slate.com/blogs/future_tense/2016/01/21/why_is_this_spectrum_band_going_largely_unused.html; Engine, *Why Startups Need More Unlicensed Spectrum, And How They Can Get It*, <http://www.engine.is/news/issues/infrastructure/why-startups-needmore-unlicensed-spectrum-and-how-they-can-get-it/6816> (Apr. 29, 2016); Broadcom, *Why Unlicensed Spectrum Allocation is Critical to the Next Wave of Innovation*, <http://www.broadcom.com/blog/wireless-technology/why-unlicensed-spectrumallocation-is-critical-to-the-next-wave-of-innovation/> (July 15, 2014).

¹⁷ See Use of Spectrum Bands Above 24 GHz For Mobile Radio Services, et al., GN Docket No. 14-177, et al., *Notice of Proposed Rulemaking*, 30 FCC Rcd 11878, 11941 ¶¶ 215-16 (2015) ("Spectrum Frontiers NPRM").

to, the Spectrum Access System that the Commission will soon certify to manage more intensive sharing of the 3.5 GHz Band.¹⁸

B. The Commission Should Include All Relevant and Appropriate Privacy and Security Rules, Applicable to Licensees and Their Wholesale Customers, in 1675-1680 MHz Service Rules.

The Commission should also add license conditions that require compliance by any eventual licensees and their wholesale customers with appropriate privacy and security safeguards. In recent proceedings, the Commission has taken note of the importance of privacy and network security. For example, the FCC addressed security vulnerabilities in the technology and systems anticipated to make up next-generation networks in the recent Spectrum Frontiers NPRM. The Commission explained that 5G networks will be expected to “provide capabilities for a tremendous variety of new devices and applications, including traditional cellular services, M2M and IoT applications, and mission critical and public safety services, among many others,” but a key challenge “is to support numerous distinctly different possible uses in a secure manner.”¹⁹ Use of any eventual licensee’s network that provides connectivity to machine-to-machine and IoT applications, as well as other services, should therefore be required to comply with the appropriate network security rules.

The Commission has also recently initiated a proceeding to ensure that consumer privacy is protected as data is transmitted across telecommunications networks. The Broadband Privacy Notice of Proposed Rulemaking focused solely on Title II telecommunications services,

¹⁸ See Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band, GN Docket No. 12-354, *Report and Order and Second Further Notice of Proposed Rulemaking*, 30 FCC Rcd. 3959, 3985-87 ¶¶ 80-86 (2015).

¹⁹ *Spectrum Frontiers NPRM* at 11952 ¶ 260 (2015).

specifically broadband Internet access services (“BIAS”).²⁰ While eventual 1675-1680 MHz licensees’ may not be used to deliver Title II services, they may provide wholesale access to a wide range of enterprise customers. These customers may include Title II mobile broadband carriers using this valuable mid-band spectrum to supplement their network in densely populated areas and in markets where they are spectrum constrained. In instances where wireless carriers use a licensee’s network to provide a retail BIAS service, the Commission’s forthcoming BIAS privacy rules should apply. For other uses of these networks, the appropriate privacy rules governing the type of service being provided over this spectrum should apply.

²⁰ See Protecting the Privacy of Customers of Broadband and Other Telecommunications Services, WC Docket No. 16-106, *Notice of Proposed Rulemaking*, 31 FCC Rcd 2500 (2016).

IV. Conclusion

For the foregoing reasons, the Commission should move forward with reallocating the 1675-1680 MHz band in accordance with Ligado's proposal, while ensuring that adequate public interest requirements are imposed on eventual licensees, in accordance with 21st Century spectrum policy priorities.

Respectfully Submitted,

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